DOCUMENT RESUME

ED 390 823 SP 036 386

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TITLE A Longitudinal Study of Students' Engagement and Perceptions in a RE:Learning High School.
PUB DATE 20 Apr 95
NOTE 29p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, April 18-22, 1995).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Educational Change; Educational Objectives; *Educational Principles; High Schools; High School Students; Instructional Development; *Instructional Innovation; *Learning Strategies; Longitudinal Studies; *School Restructuring; *Student Attitudes; Student Development; Student Motivation; Vocational High Schools
IDENTIFIERS *Sizer (Theodore R)

ABSTRACT

The RE:Learning movement is an attempt to alter the education system from the bottom up, encouraging schools to simplify their structures and focus on students' intellectual growth. RE:Learning is based on the principles of Theodore Sizer which address the simplicity and universality of a school's goals; the personalization of teaching and learning; helping students to learn effectively and demonstrate competency; attitude of the school regarding expectations, trust, decency, and tolerance; perceptions and commitment of staff; and financial resources. This paper reports on a longitudinal study of 20 unspecial students in a RE:Learning vocational technical high school who completed the questionnaire in all four of their high school years. The research addressed whether students become more engaged in their education with increased exposure to Sizer's principles, and whether students' perceptions of school regarding the principles of focus, personalization, and attitude change with increased exposure to these principles. Based on the data collected, the study found no evidence of increased student engagement over time as measured by their questionnaire responses, their grade point average (GPA), or the number of out-of-school hours of homework. No evidence was found to support an increase in students' perceptions regarding the principle of attitude but there was support for an increase in students' perceptions concerning the principles of personalization and focus. Finally, there appeared to be some connection between focus and personalization and possibly GPA. With the forces of adolescents' work and social lives competing with their academic lives, it will take even greater, unending effort on the part of the faculty to capture the students' commitment to their education. Appendices include descriptions of Sizer's principles, as well as graphs of the study data. (ND)

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A Longitudinal Study of Students' Engagement and Perceptions in a RE:Learning High School

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Paper presented at the Annual Meeting of the American Educational Research Association

San Francisco, California

April 20, 1995

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Introduction

Lack of academic engagement on the part of secondary school children is a persistent problem in this country. Various terms have been used to describe the lot of unengaged students. These include, for example the unspecial, ordinary, mediocre, average, marginalized, and at-risk students. Sizer (1984) described at length the unmotivated and docile students, stating that their "tribe is a large one" (p. 163). For Powell, Farrar, and Cohen (1985), the "unspecial" students comprise "that great mass in the middle that education has dropped the ball on for years" (p. 173). In 1988 Powell wrote,

> Though they constitute the majority of our youth, their unspecialness has been their defining - and, to a large extent, their most endearing - trait. . . . Because they do not stand out, rarely make trouble or have trouble made on their behalf, and are often quiet to the point of invisibility, they free the society to make war about more compelling dilemmas. We neglect them without guilt.

Many of the restructuring movements within the past decade have a concern for these students as their major focus. One of these movements, RE:Learning, is based on the nine common principles of Theodore Sizer (1984) (See Appendix A). Begun in 1987, RE:Learning is an attempt to alter the education system from the bottom up in an effort to amend the schooling of those ordinary students. It encourages schools to simplify their structures so as to focus on student's intellectual growth. The effort stresses intellectual focus with phrases like "less is more", depicting the need for depth within a few core areas as opposed to cursory knowledge in many subjects, and students will

"learn to use their minds well". Another principle is that of personalization. The point is for the school staff to come to really know their students and provide quality time for them. Personalization does not stop, however, with smaller classroom sizes. It suggests the involvement of the entire school staff in the schooling of and familiarization with their students. Student-as-worker (instead of student-as-recipient-of-teacher's-knowledge) is another principle. The students are to become actively involved in their own education rather than passive listeners. Attitude is the principle of the school's tone. High expectations will be held of all students. They will be treated as young adults, given trust and responsibility, and treated fairly.

At the school site these common principles are translated into such practices as a year's work on developing and gaining the support of the faculty for a new mission statement, block scheduling, teachers forming core teams working together with the same students, a common planning time among the core team members, and advisement, bimonthly meetings of small groups of students with a faculty member. These changes are intended to affect curriculum, instruction, and the relationships among faculty and students, together increasing students' engagement in their education.

Purpose and Research Questions

The purpose of this paper is to present findings from a longitudinal study of students' engagement and perceptions in a

RE:Learning high school.

The research questions addressed are: In RE:Learning high schools,

1) do students become more engaged in their education with increased exposure to the common principles?

2) do students' perceptions in school regarding the three common principles of Focus, Personalization, and Attitude change with increased exposure to these principles?

Methods

Both quantitative and qualitative methods were used to address the research questions. Questionnaires, student interviews, classroom observations, attendance at committee meetings, analyses of documents, and informal conversations were incorporated to assess the impact of the RE:Learning effort on the students.

Participants

The target population is all secondary students who are in RE:Learning schools in the state. The accessible population is all secondary students who attend "VT" (a Vocational Technical High School). The sample consists of all of the students in the graduating class of 1994 from that school who responded to the questionnaires over the past four years. There are 201 students at VT who meet these criteria. Twenty of those students, identified as "unspecial", completed the questionnaire in all four of their high school years there. VT is located in a mid-Atlantic state. It schools approximately 900 students per year,

70% of whom are White and 29% are Black. Free or reduced lunch is received by 3.3% of the students. The median family income is approximately $23,000.

Variables

The study's principal dependent variable is student academic engagement. Engagement is measured in a number of ways. They are: 1) the weighted mean response to the cluster of items in the Engagement composite of the student questionnaire (See Appendix B); 2) Grade Point Average (GPA); and 3) the number of out-of-school hours spent on homework in a week. Students' perceptions, defined as the mean of the clusters of weighted items for the common principles of Focus, Personalization, and Attitude (See Appendix B), are the other repeated measure dependent variables. The independent variable is year in school, serving as a proxy for exposure to the RE:Learning principles.

Materials

The mainstay of the study is a longitudinal close-ended questionnaire, given to students in RE:Learning schools. The 155 item questionnaire asks students about their perceptions in school as related to their engagement, five of the common principles, and various other topics, such as grading, emphases in courses, and parental involvement. Cronbach's coefficient alpha for the overall survey, the item clusters measuring the three principles of focus (k=27), personalization (k=12), and attitude (k=4), and the cluster measuring engagement (k=13) is .87, .74, .82, .63, and .71 respectively. Audiotaped, semi-

structured interviews were conducted with a sample of the students. Participant observations of classrooms and steering committee meetings, analyses of documents, and informal conversations were used to understand the staff's interpretation and application of the RE:Learning principles within the school walls.

Procedure

The student questionnaires were administered to the students in the spring of each of their high school years. No attempt was made to followup on students who were not at school when the surveys were administered. From school files, grade point average, attendance, tardies, discipline, and membership in extracurricular activities were obtained to categorize the students into subgroups. Categorization was based on students' status at the end of their freshman year. The unspecial students were defined as those with a cumulative GPA between 1.0 and 2.6 on a 4.0 scale, along with no truancy, tardiness, or discipline problems, nor participation in extracurricular activities. (Truancy problem was defined as greater than the average number of absences plus one standard deviation (18 days absent). Tardiness problem was defined as greater than the average number of tardies plus one standard deviation (7 tardies). Discipline problem was defined as one or more out-of-school suspensions.)

Data Analyses

1) In RE:Learning high schools, do students become more engaged in their education with increased exposure to the common

principles?

2) In RE:Learning high schools, do students' perceptions in school regarding the three common principles of Focus, Personalization, and Attitude change with increased exposure to these principles?

To answer these two research questions Multivariate Analysis of Variance (MANOVA) was calculated for the three measures of engagement and the clusters of items measuring the common principles, described in the variables section above. Post hoc analyses to identify the sources of significant differences were run, using dependent t-tests. To protect against inflated Type I error rates due to multiple comparisons, the alpha level of .05 was divided by the number of comparisons (6), yielding an alpha level of .008.

Results

The average GPA across the four years was 2.53 (s.d.=.52). The number of hours of out-of-school homework remained stable across the four years with a mean of 2.74 (s.d.=2.61) hours per week. Table 1 presents descriptive statistics for the five dependent variables. Figures 1 through 5 plot the mean values for those variables across years, thus illustrating the significant differences presented in Table 2. To demonstrate a sense of the relationship between the variables over time, Figure 6 overlays the trend lines illustrated in Figures 1 through 5.

MANOVA was calculated for the six dependent variables across all four years for the twenty unspecial students with complete data. The F-statistic associated with Wilk's lambda was examined

for significance. All variables, except number of out-of-school hours spent on homework were significant, as follows:

Engagement	$F(3,16) = 2.76$, $p<.07$.
Personalization	$F(3,16) = 5.24$, $p<.01$.
Attitude	$F(3,16) = 3.73$, $p<.03$.
Focus	$F(3,16) = 3.01$, $p<.05$.
GPA	$F(3,16) = 3.85$, $p<.01$.

Followup comparisons produced the following mean differences. (See Table 2.)

Engagement between senior and freshman years, $t_{19} = -2.90$, $p<.01$.

Personalization between senior and freshman years, $t_{19} = 3.77$, $p<.001$.

Personalization between senior and sophomore years, $t_{19} = 2.72$, $p<.01$.

Personalization between senior and junior years, $t_{19} = 3.64$, $p<.005$.

Attitude between senior and sophomore years, $t_{19} = -3.46$, $p<.005$.

Focus between senior and freshman years, $t_{19} = 2.79$, $p<.01$.

GPA between junior and sophomore years, $t_{19} = -2.56$, $p<.01$.

Discussion

Students' academic engagement has been defined in a number of ways. For Hess & Takanishi (1974), it is the degree to which students are interested in and pay attention to their classes. Newmann, Wehlage, and Lamborn (1992), "define student engagement in academic work as the student's psychological investment in and effort directed toward learning, understanding, or mastering the knowledge, skills, or crafts that academic work is intended to promote" (p. 12). Engagement is a construct, the levels of which "must be estimated or inferred from indirect indicators such as

the amount of participation in academic work (attendance, portion of tasks completed, amount of time spent on academic work), the intensity of student concentration, the enthusiasm and interest expressed, and the degree of care shown in completing the work" (p. 13).

Lee and Smith (1992, 1994), using a nationally representative sample of high school sophomores, found strong evidence of higher student engagement in schools with restructuring practices than in schools without restructuring. Marks' (1994) findings support those of Lee and Smith with regard to the effect on student engagement of generalized restructuring in the schools. However, she also found a positive effect of specific restructuring content, such as authentic academic work.

VT joined the RE:Learning initiative four years ago. Each successive year the school became more deeply involved, with a substantial difference occurring in 1993-94, the same year that the sample students were in their senior years. Some of these differences include: 1) a large amount of energy devoted to developing a new mission statement for the school, thus demonstrating a deeper understanding of Sizer's nine common principles; 2) advisement, a twice monthly meeting of every staff member with her/his own small group of students to discuss issues of importance to those individual students as well as to the whole school; and 3) a Senior Project (a prime example of Marks' "authentic academic work"), comprised of a <u>product</u> in the students' shop over and above their regular work within the shop,

a paper describing the product and the entire research process behind it, often tying academic and vocational issues together, and a presentation to faculty and fellow students, based on the paper and product.

Despite these efforts, there was a consistent decline in engagement across years as measured by the student questionnaire, with a significant difference between the freshman and senior years. One plausible, though untested, explanation is students' unfamiliarity with high school in their freshman year. Perhaps the students begin high school with a stronger work ethic, held over from middle school. Graphical evidence of this possibility is that the level of engagement decreased every year after ninth grade (See Figure 1). Preliminary results of the student interviews (though far from fully analyzed) suggest an additional possible explanation. That is the devotion of the students' time and energies to their jobs, dating, and partying, all of which increase over the years.

GPA (Figure 2), which took a significant dip between sophomore and junior years, made a slight comeback in senior year. It is likely that the student's effort on their senior project is reflected in their work in several courses, particularly shop and English. Also, evidence from the interviews suggests that students become a bit concerned about graduating in the third quarter of their final high school year.

Personalization (Figure 3), increased immensely in senior year, significantly greater than all three prior years. It is

likely that this finding reflects the culmination of a four year relationship between the students and the staff along with the implementation of Advisement, in which small groups of students are given individual attention by a single staff member. In addition, for many of the students the Senior Project led to a close working relationship between the student and at least one faculty member.

Attitude (Figure 4) dropped in the senior year. This finding is most puzzling on two counts. One is the overall effort put forth by the staff to create a "tone of decency" within the school. The other is that the student interviews to date seem to point to a feeling of general fairness within the school. I suggest that the enormous emphasis placed on senior project, graded and (supposedly) "required for graduation", yet not given specific course credits, may have played a role. (In addition, the reliability of the Attitude cluster of items is only moderate, $\alpha = .63$.)

The common principle of Focus increased in senior year. This likely reflects a combination of the faculty's concentrated effort directed to the school's mission and the increases in intellectual focus required by the Senior Project.

Initially I wanted to test for the relationship between the students' perceptions of the presence of the common principles and their engagement. Unfortunately the final sample size in this longitudinal study was too small to bear useful correlational analyses. However, an examination of the trend

lines of all the variables simultaneously (Figure 6) demonstrates similarities between Focus and Personalization, both of which increased significantly in the senior year, and Engagement and Attitude, both of which decreased significantly in the senior year. Finally, GPA increased during the senior year, though the rise did not reach statistical significance.

Conclusions

With regard to the research questions, the present study found no evidence of students' increased engagement over time as measured by the questionnaire, their GPA, or the number of out-of-school hours of homework. No evidence was found to support an increase in students' perceptions regarding the common principle of Attitude. There is support for an increase in students' perceptions concerning the principles of Personalization and Focus. Finally, there appears to be some connection between Focus and Personalization and possibly GPA. I suggest that if the Senior Project would carry more weight, such as actual credits or truly "no project, no graduation" we may see an even stronger relationship here.

The small final sample size in this four year longitudinal study, coupled with only moderate reliabilities of some of the measures greatly limited the power of the analyses as well as any statements of generalization. Still, significant findings using a sample of only twenty "unspecial" students suggests that the differences in their academic engagement and perceptions of the presence of Sizer's common principles are, indeed, real.

It has been demonstrated that the personalization with students and the students' overall intellectual focus can be enhanced through the concerted effort of a high school's staff. Development of these principles within the school building may indeed play a role in increasing the bottom line of students' GPA. However, these advances alone are not enough to produce an increase in students' overall level of academic engagement. Sizer (1985) said that we have got to get the incentives right. My tentative conclusion is that with the forces of adolescents' work and social lives competing with their academic life, it will take even greater, unending effort on the part of the faculty to capture the students' commitment to their education.

Presently I am conducting a full analysis of student interviews gathered since the time of this paper and a cross-sectional study of student engagement and their perceptions of the principles of personalization, attitude, and focus. The former will shed light on the reasons for the trends in their engagement and perceptions. Regarding the latter, (revised) questionnaires have been collected from over 500 ninth through twelfth grade students. This large sample size will permit the correlational analyses necessary to test for the relationship between the students' engagement and their perceptions of the common principles.

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Appendix A

The Nine Common Principles

1. Focus The school should focus on helping adolescents to learn to use their minds well. Schools should not attempt to be "comprehensive" if such a claim is made at the expense of the school's central intellectual purpose. That is, Essential Schools should not attempt to provide an unrealistically wide range of academic, vocational, extracurricular, and social services for adolescents.

2. Simple goals The school's goals should be simple: that each student master a limited number of centrally important skills and areas of knowledge. While these skills and areas will, to varying degrees, reflect the traditional academic disciplines, the program's design should be shaped by the intellectual and imaginative powers and competencies that students need, rather than by "subjects" as conventionally defined. That is, students' school experience should not be molded by the existing complex and often dysfunctional system of isolated departments, "credit hours" delivered in packages called English, social studies, science, and the rest. Less is more. Curricular decisions should be guided by the aim of student mastery and achievement rather than by an effort to "cover content".

3. Universal goals The school's goals should be universal, while the means to these goals will vary as those students themselves vary. School practice should be tailor-made to meet the needs of every groups or class of adolescents.

4. Personalization Teaching and learning should be personalized to the maximum feasible extent. Efforts should be directed towards a goal that no teacher have direct responsibility for more than eighty students. To allow for personalization, decisions about the details of the course of study, the use of students' and teachers' time, and the choice of teaching materials and specific pedagogies must be unreservedly placed in the hands of the principal and staff.

5. Student-as-worker The governing practical metaphor of the school should be student-as-worker, rather than the more familiar teacher-as-deliver-of-instructional-services. Accordingly, a prominent pedagogy will be coaching, to provoke students to learn how to learn, and thus to teach themselves.

6. Diploma by exhibition Students entering secondary school studies are those who are committed to the school's purposes and who can show competence in language, elementary mathematics, and basic civics. Students of traditional high school age who are not yet at appropriate levels of competence to enter secondary school studies will be provided intensive remedial work to assist them quickly to meet these standards. The diploma should be awarded upon a successful final demonstration of mastery for graduation--an "exhibition". This exhibition by the student of his or her grasp of the central skills and knowledge of the school's program should be jointly administered by the faculty and by higher authorities: the exhibition represents the latter's primary and proper influence over the school's program As the diploma is awarded when earned, the school's program proceeds with no strict age-grading and with no system of "credits earned" by "time spent" in class. The emphasis is shifted to the students' demonstration that they can do important things.

7. Attitude The tone of the school should explicitly and self-consciously stress values of unanxious expectation ("I won't threaten you but I expect much of you"), of trust (until abused), and of decency (the values of fairness, generosity, and tolerance). Incentives appropriate to the school's particular students and teachers should be emphasized, and parents should be treated as essential collaborators.

8. Staff The principal and teachers should perceive themselves as generalists first (teachers and scholars in general education) and specialists second (experts in only one particular discipline). Staff should expect multiple obligations (teacher-counselor-manager) and feel a sense of commitment to the entire school.

9. Budget Ultimate administrative and budget targets should include, in addition to total student loads per teacher of eighty or fewer pupils, substantial time for collective planning by teachers, competitive salaries for staff, and an ultimate per pupil cost not to exceed that at traditional schools by more than 10 percent. To accomplish this, administrative plans will inevitably have to show the phased reduction or elimination of some services now provided to students in many traditional comprehensive secondary schools.

Student Engagement

About how often do you have individual meetings before or after school with a teacher?

About how often do you tell parents/guardians what you learned in school?

I am interested in what I'm studying.

I know what's in the student handbook.

At lunch, my friends and I talk about that morning's classes.

The course is important. (Asked of the four core courses of English, Math, Science, History)

The course is interesting. (")

Personalization

I think my teachers care about my happiness.

When a teacher returns a paper to me with comments on it, those comments help me do better in the future.

My teachers know when a student comes to class unprepared for that day's work.

My teachers know my strengths and my weaknesses as a student.

The teacher pushes me to do my best all the time. (Asked of the four core courses of English, Math, Science, History)

The teacher knows my strengths and weaknesses as a student. (")

Attitude

This school stresses grades too much.

The smartest students get too much of the teacher's time.

A person's color affects his/her chances of doing well in this school.

Sometimes I think a teacher changed my grade because s/he disliked or liked me.

Focus

About how often do you have homework?

About how often do you have essay questions on your tests?

About how often do you have to explain what you mean when you answer a teacher's question?

Doing well in English class helps me do well in my other subjects.

When we see a film in class, our teacher discusses the film later.

Teachers spend too much time reviewing material I learned the year before.

We need more after school clubs for math and science.

My teachers try to relate their subjects to other teachers' subjects.

I am learning how to learn--how to teach myself.

Generally, the teachers lecture for most of each class period.

I can daydream in class and not be hurt on my tests.

The teacher enccurages questions by the students. (Asked of the four core courses of English, Math, Science, History)

The teacher tries to relate the subject to other teacher's subjects. (")

About how often do you have homework? (")

About how often do you have to provide and in-depth answer to the teacher's questions. (")

20 21

Table 1

Means and Standard Deviations of Variables Across Years

	Freshman	Sophomore	Junior	Senior
Engagement	2.72 (.64)	2.42 (.56)	2.37 (.51)	2.18 (.61)
GPA	2.59 (.38)	2.71 (.52)	2.31 (.76)	2.51 (.78)
Personalization	3.21 (.60)	3.22 (.75)	3.19 (.56)	3.80 (.47)
Attitude	2.63 (.67)	2.71 (.58)	2.57 (.80)	2.17 (.79)
Focus	3.11 (.39)	3.14 (.45)	3.23 (.34)	3.39 (.43)

Table 2

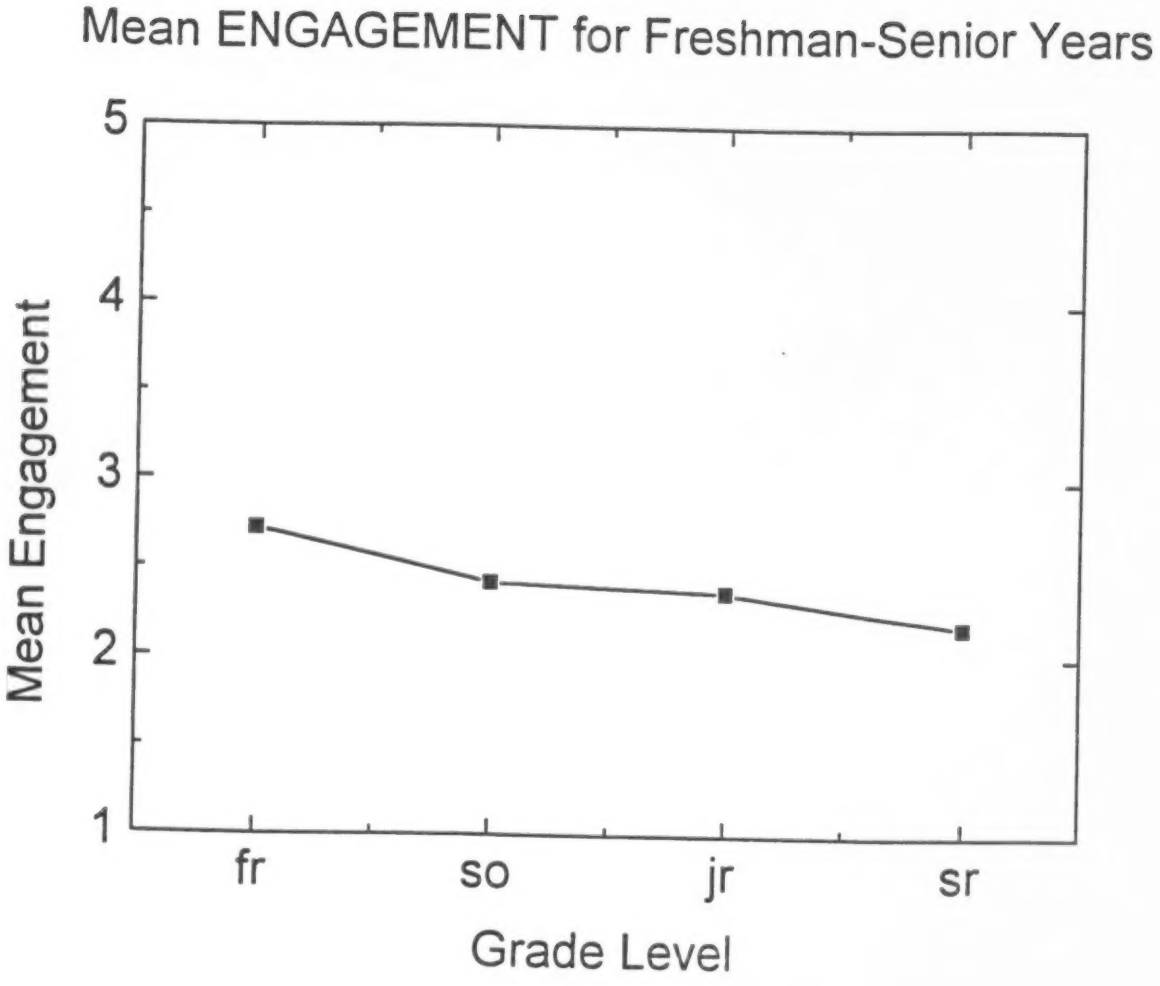
Dependent t-tests of

Variables Across Years

Comparison	$\bar{X}$ Difference	t	(stderr)
Engage4-1	-.54	-2.90	(.185)*
Person4-1	.58	3.77	(.156)***
Person4-2	.57	2.72	(.211)*
Person4-3	.60	3.64	(.167)**
Attit4-2	-.53	-3.46	(.153)**
Focus4-1	.28	2.79	(.101)*
GPA3-2	-.40	-2.56	(.154)*

* = $p < .01$
** = $p < .005$
*** = $p < .001$

Figure 1


Mean ENGAGEMENT for Freshman-Senior Years
Mean Engagement
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Grade Level

Figure 2

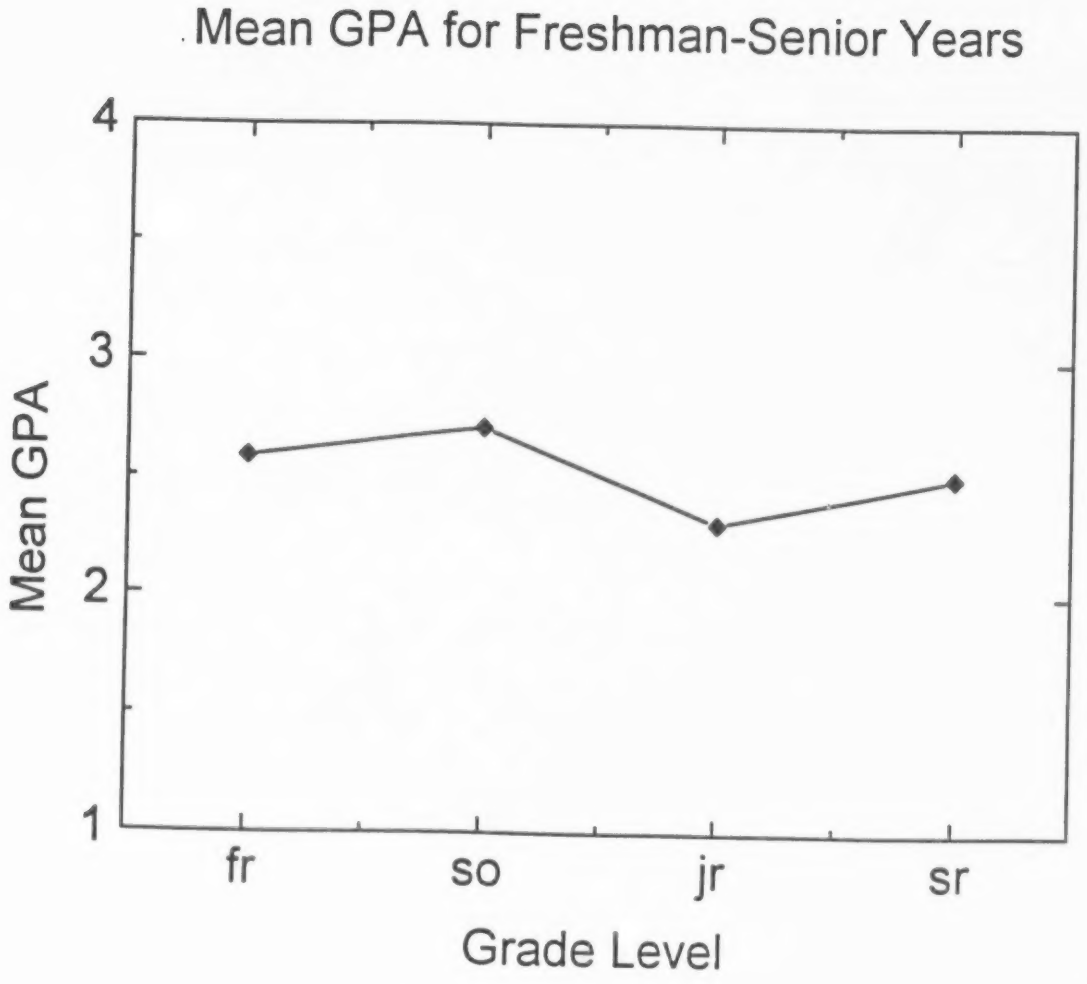
Mean GPA for Freshman-Senior Years
Mean GPA
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Figure 3

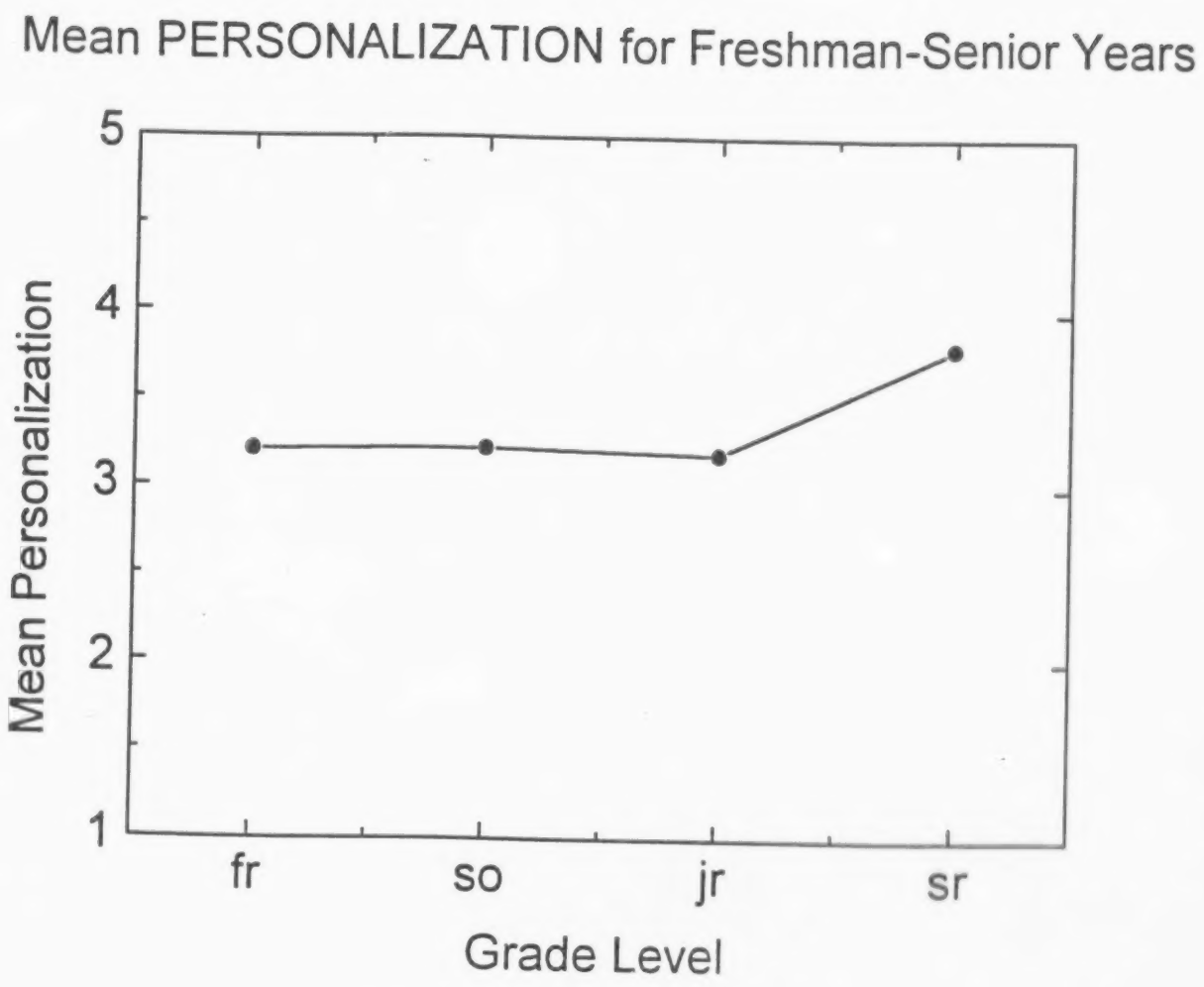
Mean PERSONALIZATION for Freshman-Senior Years
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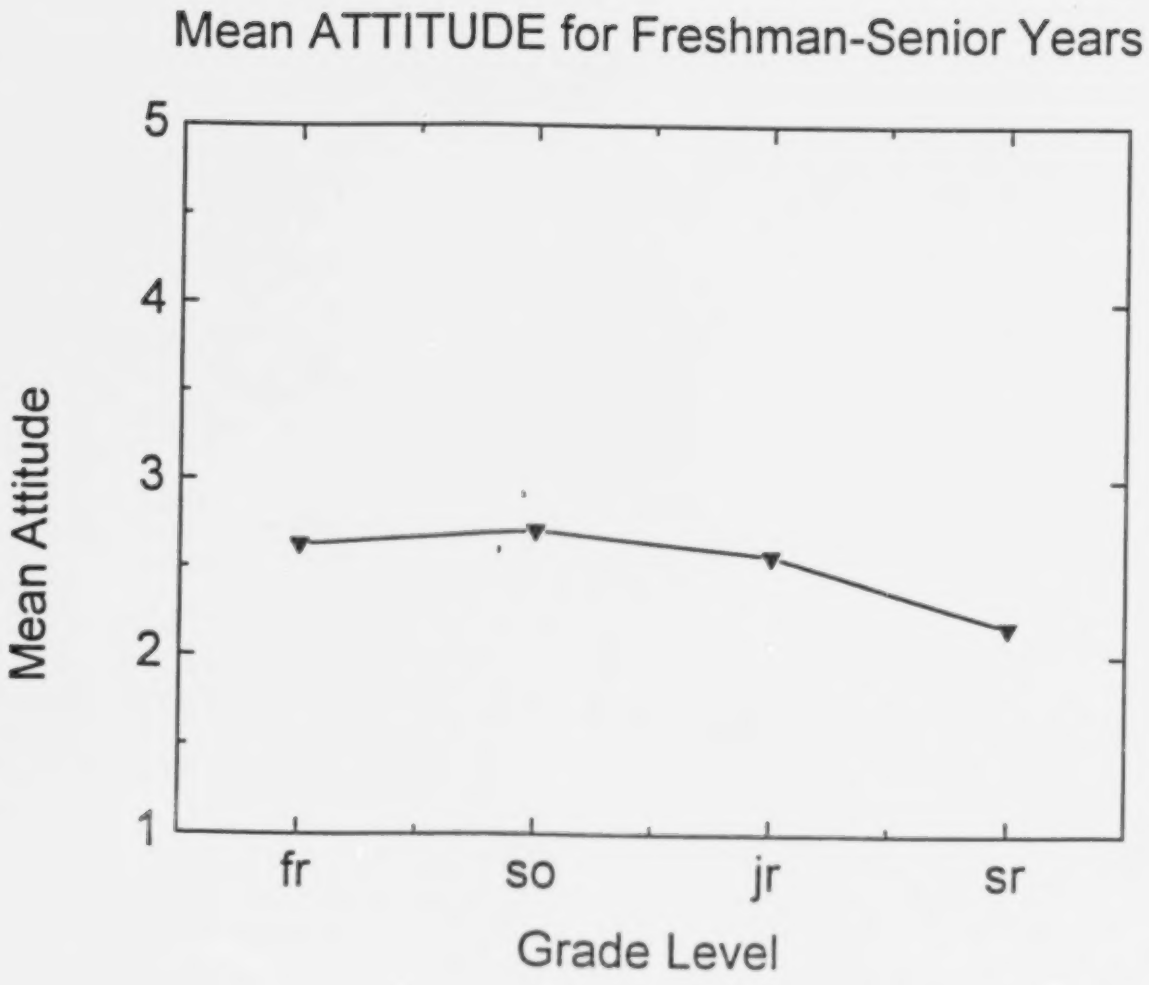
Figure 4


Mean ATTITUDE for Freshman-Senior Years
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Grade Level

Figure 5

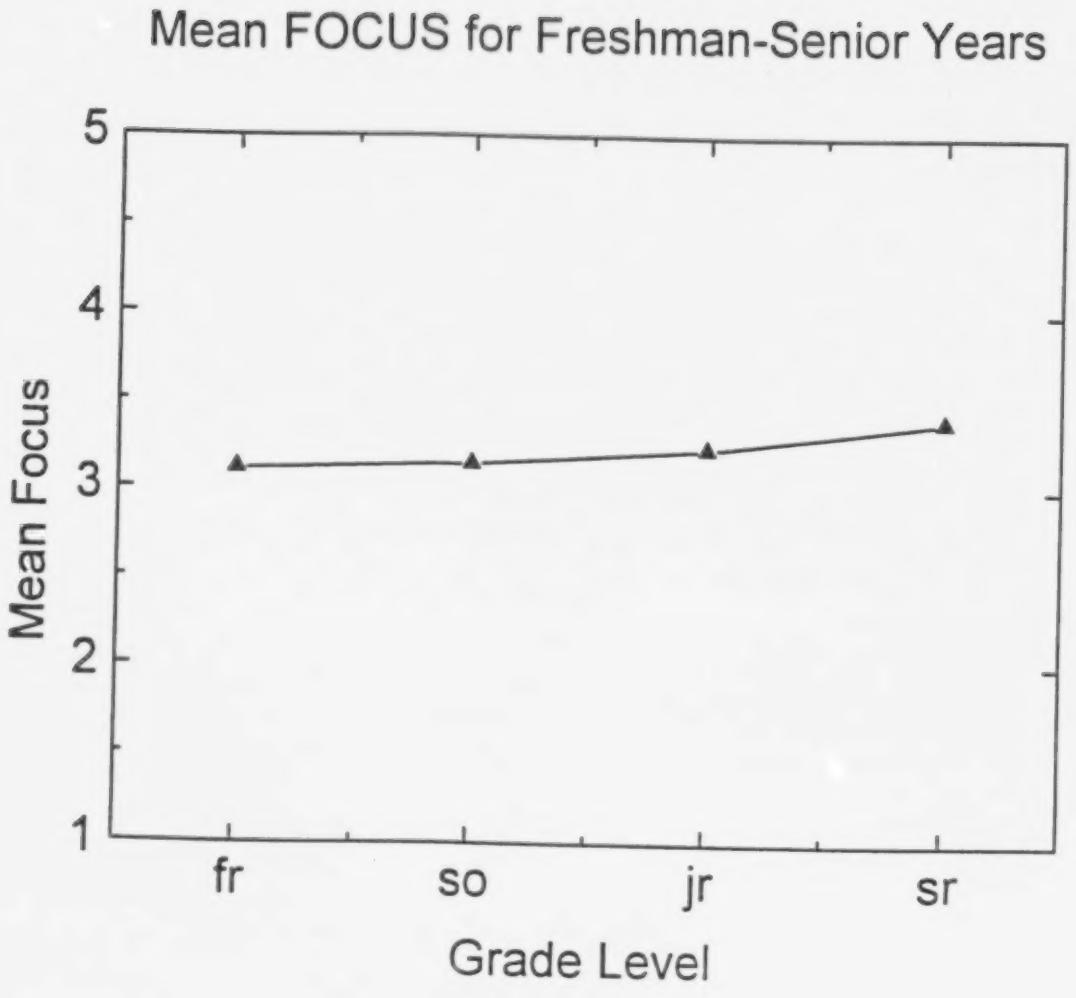
Mean FOCUS for Freshman-Senior Years
Mean Focus
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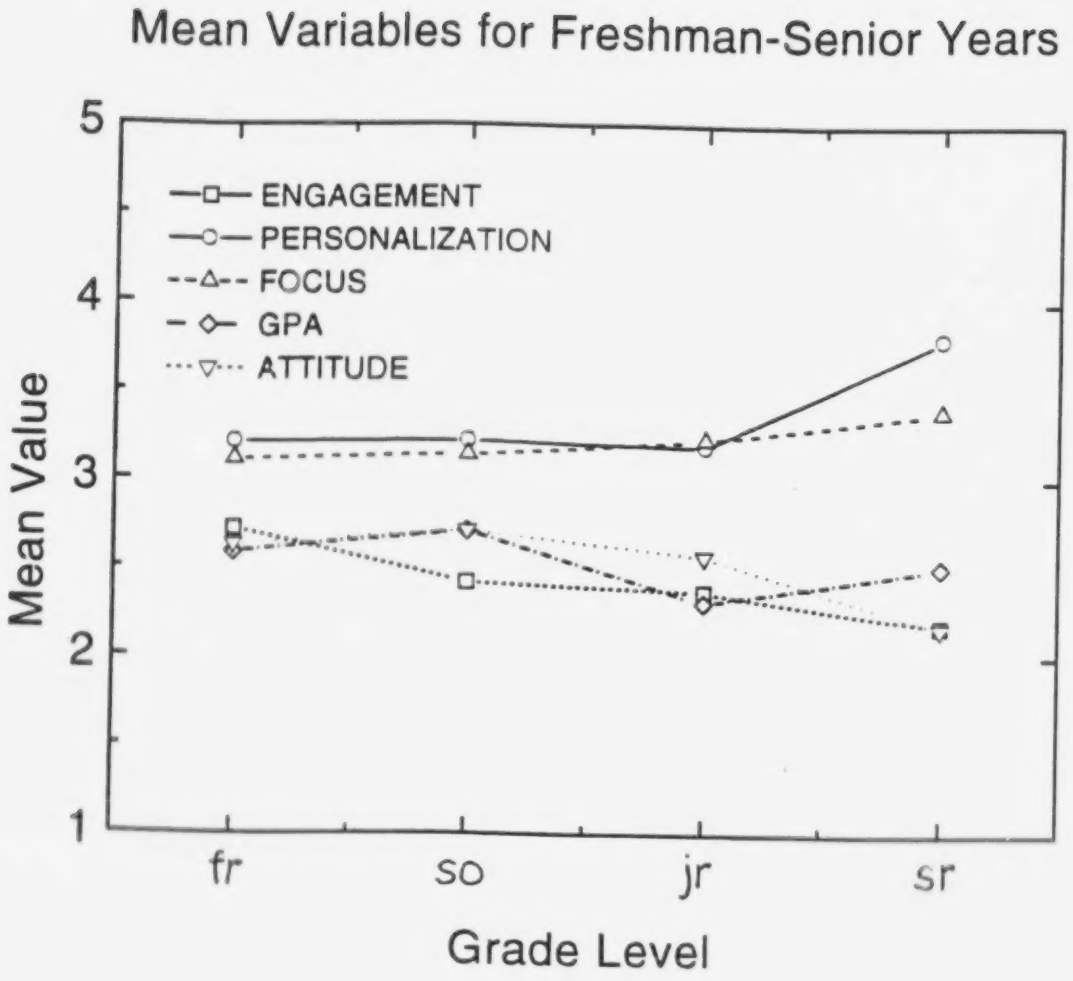
Figure 6


Mean Variables for Freshman-Senior Years
ENGAGEMENT
PERSONALIZATION
FOCUS
GPA
ATTITUDE
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Grade Level